

XII. *Observations on some rare Reptiles and a Batrachian now or lately living in the Society's Menagerie.* By Dr. ALBERT GÜNTHER, F.R.S., V.P.Z.S.

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[PLATES XLII. to XLVI.]

CHELYS FIMBRIATA (Schneid.). (Plate XLII.)

THE Matamata is an inhabitant of stagnant waters of Brazil and Guyana. The adaptation of almost every part of this extraordinary creature for its aquatic life, and for the purpose of concealment, is perfect. When this Turtle rests on the surface of the water, or lies half buried at the bottom in the sand, the broad, flat shell with three rough ridges resembles a stone, which by other animals will be readily taken as a place of refuge or rest. The neck is long, broad, and flat, incapable of being retracted within the shell, but can be bent backwards on the right side of the animal. Its sides bear a fringe of broad, dentated tentacles, floating in the water like some vegetable growth. The flat triangular upper surface of the head is enlarged by a skinny postero-lateral lappet overhanging the large tympanum, and terminates in front in a thin flexible proboscis. This enables the animal to breathe without raising the whole head and thus making the ripple on the surface of the water by which other freshwater Turtles betray their presence. The eyes are very small, though clear and perfectly developed. The cleft of the mouth is wide; but the jaws with their horny covering are narrow, feeble, and remarkably flexible.

Naturalists and travellers have left us, singularly enough, very much in the dark as regards the habits of this singular creature. Bruguières tells us that it is eagerly sought for by the Indians for food, that it feeds on the plants growing near the water's edge, and that he has kept one for some time alive on herbs and bread. As regards its diet, Bruguières probably was mistaken. Schomburgk (*Reis. Brit. Guiana*, i. p. 326) speaks in words of the utmost disgust of its appearance and intolerable smell. He found it rather frequent on the sandbanks of the river Takutu (ii. p. 29), generally half hidden in the sand in shallow water which barely covered the animal, motionless, and apparently watching for its prey. Without an attempt to escape and without any struggle the Turtles allow themselves to be taken. Schomburgk confirms that they are eaten by the Indians (iii. p. 647).

The specimens which are at present in the Menagerie of the Society fully bear out Schomburgk's observations as regards the extreme sluggishness of the animal, and the penetrating smell, which, after handling them for a short time only, adheres to the hand for nearly twenty-four hours, and resembles the musky smell of the Alligator.



If we are allowed to make a conjecture as to the principal food of the Matamata, we should be inclined to find it in small fishes, and especially tadpoles. These may be allured to the animal by the waving fringes of its neck and head, and could be readily seized in its feeble jaws, which would be equally ill adapted for cutting off plants or for holding a larger and stronger prey.

Although no good figure of the Matamata has been published, the descriptions are sufficiently detailed to render another description unnecessary. However, there are two points which deserve special notice.

Strauch (*Chelonolog. Stud.* p. 172) has already stated that authors give different accounts of the extent of the gular plate. In fact, in some specimens the gular plate is short, triangular, and bordered entirely by the postgulars, which form a broad suture together. In other specimens the gular plate is oblong, elongate, reaching the pectorals, and entirely separating the postgulars. This lesser or greater development does not depend on age, as both forms of the gular are found in very young specimens preserved in spirits in the British Museum. Unfortunately the origin of the majority of the specimens which I have had the opportunity of observing is unknown; but such scanty information as I have been able to collect would have led me to the conclusion that the form with the short gular is peculiar to Guiana, and the other form indigenous in the system of the Amazons. In that case the name of *Chelys fimbriata* would have to be restricted to the former, and that of *Chelys matamata* to the Amazonian race, so named and figured by Spix. However, the two specimens living at the present moment (November 1880) in the Society's Gardens, which were acquired at the same time and from the same source, show both modifications, and therefore make me hesitate to see in this remarkable difference more than individual variation. Its explanation as a secondary sexual character would be difficult to understand, and open to objection¹.

The second point to which I would draw attention is the coloration of the young. The shell and soft parts of the adult are almost entirely of a uniform brownish-red colour, resembling that of river-sand. Only on the neck faint outlines mark the position of the spots which are so conspicuous in the young. Specimens preserved dry become darker, brownish-black. The ground-colour of a young individual, the shell of which is 3 inches long, is light reddish, as in the adult, but the areola of each costal scute bears a large black spot; a brown line commences on the occiput, and is continued along the vertebral line to the caudal scute; two brown raised ridges diverge from the frontal region towards each side of the occiput. The lower part of the projecting snout is deep brown. The throat is ornamented with four broad brown longitudinal bars, the two middle occupy the lower side of the throat, and are confluent near the chin, the outer are broader, and run from the angle of the mouth over the

¹ Since these lines were written, the Zoological Society received two other examples, in one of which the development of the gular plate is intermediate between the extreme forms described.

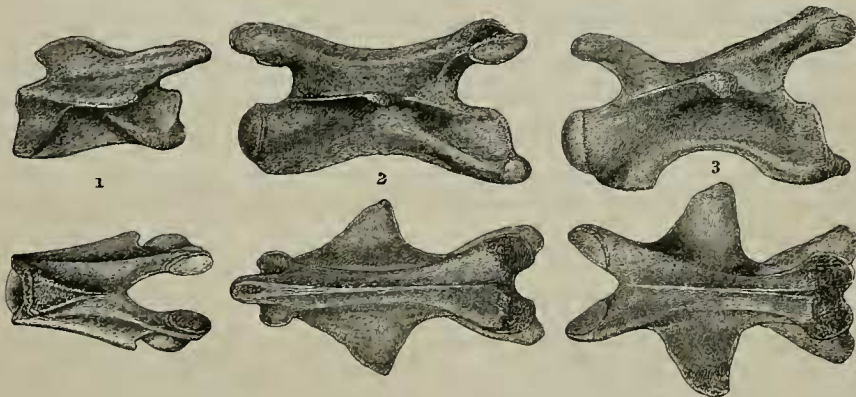
tympanic region along the side of the neck, are confluent with the middle ones behind, and succeeded by some irregular spots. Every scute at the lower side has a broad brown margin with a lateral or subcentral yellow spot. Also the fore legs are ornamented in front with a broad brown longitudinal band.

The largest specimens which I have seen had a shield about 15 in. long; but from the vague descriptions of travellers there is a probability that this Turtle grows to about twice that length.

Of the *skeleton*, two specimens are in the British Museum, of nearly the same size, the carapaces being respectively 13 and 14½ in. long. The most prominent peculiarities of the osteology have been noticed by Cuvier (*Oss. Foss.* vol. v. part 2), Owen (*Osteol. Cat. Coll. Surg.* vol. i. p. 186), and Hoffmann (in Bronn's *Thierreich*, Reptil. p. 68); but I have observed some points in the structure of the vertebral column which are not, or but slightly, referred to by those authors or by Vaillant, the latest writer on the subject (*Ann. Sc. Nat. Zool.* 1880, p. 80), whose observations otherwise most closely agree with mine.

The cervical vertebræ, which, as usual, are eight in number, show the greatest resemblance to those of *Chelodina* from Australia. The elongate compressed shape of the centra, the development of broad pleurapophyses, the tendency of the posterior zygapophyses to unite into a single process, and, finally, the mode of articulation are the same in both genera. Like Vaillant, I find simple condyles in all these vertebræ; and not the double convexity and concavity between the sixth and seventh which has been described by Owen. The 1st vertebra is biconcave, the 2nd, 3rd, and 4th opisthocœlous, the 5th biconvex, the 6th procœlous, the 7th biconcave, and the 8th biconvex. In the first, traces of the union between neural arch and odontoid elements can scarcely be distinguished, the entire vertebra being similar in form to the second, but shorter and with the posterior zygapophyses wider apart. In the fourth,

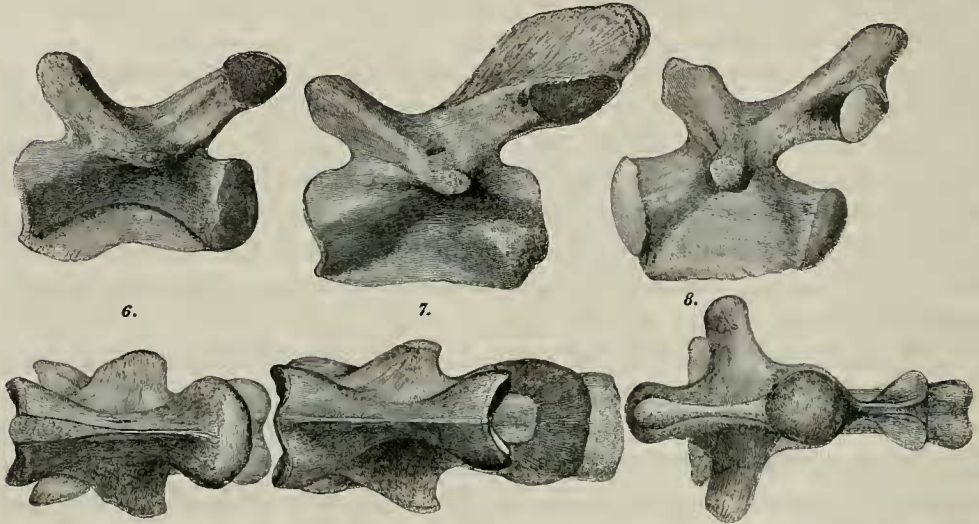
Fig. 1.



First, second, and third cervical vertebræ of *Chelys fimbriata* (upper and lateral views).

fifth, and sixth the posterior zygapophyses coalesce, forming a prominent process with a button-like end, the articular facets being at the under surface, and separated from each other by a narrow groove. In the seventh vertebra these zygapophyses are enormously developed into a short high club-shaped process, with the articular sur-

Fig. 2.

Sixth, seventh, and eighth cervical vertebræ of *Chelys fimbriata* (lower and lateral views).

faces coalesced into one, and at the lower surface of the bone. The eighth vertebra is distinguished by an extremely compressed centrum, much longer than the short neural arch, by cylindrical pleurapophyses, and by a long coalesced posterior zygapophysis, which is also club-shaped, but much less thick than that of the seventh vertebra. A division into two halves is indicated by a shallow notch at the top, and a deep hollow between the articular facets, which are placed at the sides and not on the lower surface of the process; a deep groove is hollowed out in front of each articular facet.

In connexion with this peculiar structure of the posterior cervical vertebræ it should be remembered that *Chelys*, like *Chelodina*, does not retract neck and head backwards within the shell in the median line of the body, but bends it sideways, so that the head lies either on the right or left forearm.

The number of dorsal vertebræ is eleven, the three hindmost forming a sacrum.

Caudal vertebræ 17 or 19.

METOPOCEROS CORNUTUS (Wagl.). (Plates XLIII. and XLIV.)

For many years the single specimen of this Lizard in the Paris Museum, described by Lacépède and Duméril, remained unique, until a living example was presented to the Society in the year 1871¹; and, singularly, ever since that period the Reptile-House

¹ Proc. Zool. Soc. 1871, p. 627.

has rarely been left without one or two individuals of this rare species. The typical specimen is stated to have been obtained at San Domingo; but of none of the specimens received by the Society is the exact origin known¹.

The description given by Duméril and Bibron applies to our specimens in every particular, except in the following points. The teeth cannot be described as "tricuspid;" the central main cusp is free from denticulation, and two or three small notches indent the margin at some distance from the point of the tooth; towards the front the teeth are simply conical. The teeth are larger than in *Iguana tuberculata*, twenty in each maxillary, six in the single intermaxillary, and twenty-two in each mandible. In the scutulation of the upperside of the head I observe that there are *three* pairs of scutes interposed between the nostril and frontal horn, the posterior and middle being conically raised. The nasal shield forms a direct suture with the rostral, without any intervening accessory scutes, as described by Duméril.

The skeleton is very similar to that of *Iguana (tuberculata)*. The vertebræ are more slender and depressed, and provided with much shorter and more feeble neural spines; but their number is the same in both species, viz. six cervical, eighteen dorsal, and two sacral. Also the skull (Pl. XLIV.) is built entirely upon the plan of *Iguana*; but it is more massive and depressed, with a prolonged rostral region. The zygomatic arch is very broad; the parietals are horizontally spread out, not vertically as in *Iguana*, forming a broad roof over the occipital region. Again the fore part of the skull shows much firmer and more solid ossifications than in *Iguana*, the floor of the long oval nasal cavity being nearly entirely osseous. The posterior process of the articular of the mandible is short, and much more obtuse than in *Iguana*.

The bones of the limbs do not show any noteworthy difference from those of *Iguana*; but they are throughout shorter. The following are the measurements taken from skeletons of *Metopoceros* and *Iguana tuberculata* which are of the same size, the vertebral column to the first caudal vertebra measuring 10 inches.

	<i>Iguana.</i> millim.	<i>Metopoceros.</i> millim.
Humerus	60	52
Ulna	51	48
First metacarpal	12	12
First finger, first phalanx	11	9
Second metacarpal	16	14
Second finger, first phalanx	10	8
Second finger, second phalanx	11	8
Third metacarpal	19	17
Third finger, first phalanx	10	8
Third finger, second phalanx	10	7
Third finger, third phalanx	12	7

¹ List of the Vertebrated Animals, 7th ed. p. 499.

	<i>Iguana.</i> millim.	<i>Metopoceros.</i> millim.
Fourth metacarpal	17	16
Fourth finger, first phalanx	9	6
Fourth finger, second phalanx	8	6
Fourth finger, third phalanx	9	5
Fourth finger, fourth phalanx	10	6
Fifth metacarpal	10	10
Fifth finger, first phalanx	9	7
Fifth finger, second phalanx	11	7
Femur	68	60
Tibia	53	52
First metatarsal	18	17
First toe, first phalanx	14	10
Second metatarsal	25	23
Second toe, first phalanx	13	10
Second toe, second phalanx	13	9
Third metatarsal	32	30
Third toe, first phalanx	14	11
Third toe, second phalanx	13	8
Third toe, third phalanx	15	8
Fourth metatarsal	36	33
Fourth toe, first phalanx	18	15
Fourth toe, second phalanx	15	10
Fourth toe, third phalanx	14	9
Fourth toe, fourth phalanx	14	9
Fifth metatarsal	15	13
Fifth toe, first phalanx	12	10
Fifth toe, second phalanx	13	10
Fifth toe, third phalanx	15	6

It is obvious from a consideration of these measurements that the limbs of *Metopoceros* are considerably shorter than those of *Iguana*, therefore that its habits are much less arboreal. Probably it lives on rocks near the sea-shore, and has assumed a black coloration, like other reptiles inhabiting similar localities.

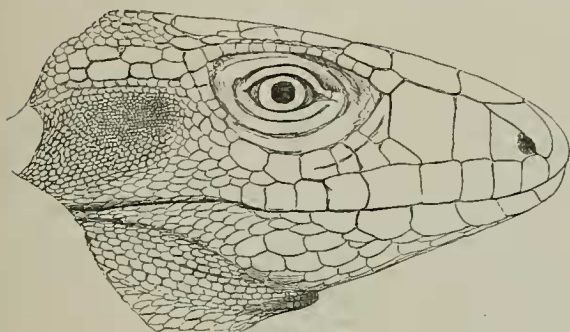
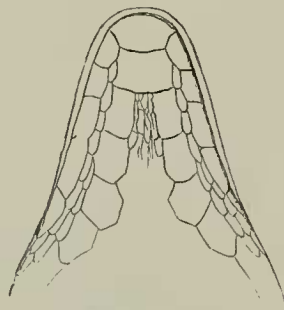
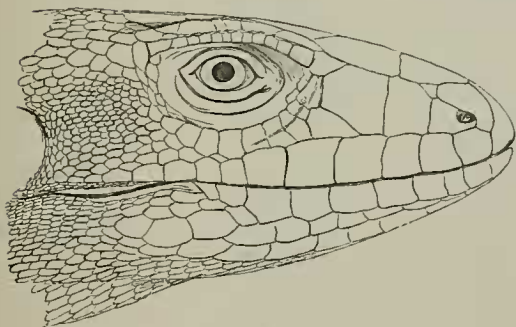
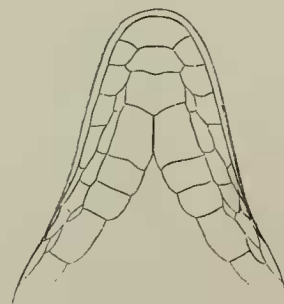
The shortening of the limbs is conspicuous in the humerus and femur, less so in the bones of the forearm and lower leg, but most in the distal bones of the fore and hind feet, which are comparatively much more shortened than the proximal.

The largest specimen received by the Society was 44 inches long, of which the trunk and head measured 18 inches.

TEJUS RUFESCENS. (Plate XLV.)

Since the publication of the description of this species in Proc. Zool. Soc. 1871, p. 541, no other specimens have come under my observation. Therefore I am unable to add any thing to that description; but after the death of the specimens the late Mr. Ford was enabled to finish in detail the coloured sketches which he had taken from them whilst they were alive. I repeat here the original description:—

On all parts of the body the scales are considerably smaller than either in *T. teguexin* or *T. nigropunctatus*. This is especially conspicuous on the temple, where the scales

*Tejus rufescens.**Tejus rufescens.**Tejus teguexin.**Tejus teguexin.*

are reduced to the size of granules. The number of transverse series of scales is about one fifth more than in the other species. A stripe of minute scales between the supra-ciliary shields and supraciliary edge. A double series, each row formed by five larger scales, above the temple. Only a single mental shield behind the middle lower labial. Posterior part of the tail scarcely compressed, much less so than in *T. teguexin*. Blackish brown, with brownish red or brownish yellow markings. These markings are in the form of irregular transverse spots on the back, more distinct on the neck, but mottled with brown on the trunk and behind. An interrupted yellowish band proceeds from the tympanum along each side of the neck to the shoulder, where it is lost among the markings of the body. Tail with the alternate black and red rings rather indistinct.

Lower parts brownish red, with irregular transverse blackish spots. Upperside of the limbs with small reddish specks.

In the largest specimen the reddish tinge covers nearly the whole body, whilst in two others of middle size it is confined to the markings and the lower parts. In two young specimens it is not developed, the markings being of a dirty whitish colour.

Hab. Mendoza.

CERATOPHRYS ORNATA (Bell). (Plate XLVI.)

Of this species a fine male specimen is at present living in the Gardens. Like other species of this genus it bears captivity well, provided it be kept in a temperature which should never be allowed to fall below 65°. Its food consists of other frogs; and it is enabled by the great width of its mouth, the strength of its jaws¹, and the extensibility of its stomach, to overpower and swallow full-grown specimens of *Rana temporaria*. During the short time of its captivity it has lost much of its timidity, and, opening its mouth, is ready to seize the hand or any other object approaching it. Its bite is powerful enough to leave the impression of its teeth on a pencil or other object. Its movements are awkward, the legs being seemingly hardly long enough to carry the bulk of its body; therefore it passes almost the whole day in a form hollowed out in the turf by means of its metatarsal shovel; it does not seem to be more active during the night. When disturbed it utters loud whining and hissing cries.

In all these points *C. ornata* resembles much *C. cornuta*, of which two specimens lived for some time in the Gardens in the year 1858². Unfortunately the mode of propagation, the larvæ, and the young stages after the metamorphosis of these large Batrachians are entirely unknown.

DESCRIPTION OF THE PLATES.

PLATE XLII.

Chelys fimbriata, $\frac{1}{3}$ nat. size, with side view of head, and two views showing the variation in the extent of the gular plate.

PLATE XLIII.

Metopoceros cornutus, $\frac{1}{3}$ nat. size.

PLATE XLIV.

Metopoceros cornutus, upperside of head, and three views of the skull.

PLATE XLV.

Tejus rufescens, nat. size.

PLATE XLVI.

Ceratophrys ornata ♂, nat. size.

¹ See Günther, Ann. & Mag. Nat. Hist. 1859, iii. p. 381.

² See Wiegmann's Archiv, xxvi. p. 39.